

PATENT ABSTRACTS OF JAPAN

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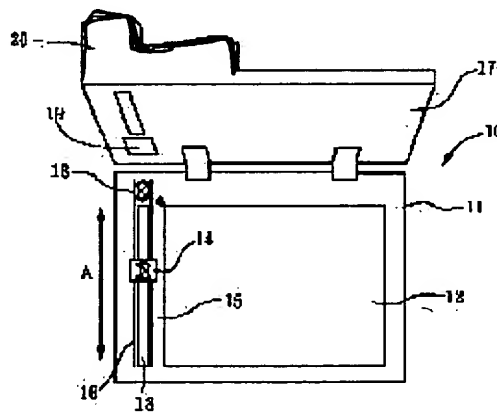
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(54) IMAGE READER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a structure capable of being put in a place in which a user can operate a contact-glass cleaning means easily and which does not hinder a reading operation, capable of making operability easy and convenient, and capable of obtaining a satisfactory image every time, with respect to an image reader of a sheet-through type.

SOLUTION: The image reader 10 is equipped with an original-document table 11, a contact glass 12 for a movable scanner, a contact glass 13 used for scanning and reading an original document, the cleaning means 14, guide rails 15 and 16 for reciprocally moving the cleaning means 14 in a main scanning direction, a pressure plate 17, an original-document supply device 20 of the sheet-through type formed so as to be integrated with the pressure plate 17, and cleaning-means storage parts 18 and 19. The cleaning means 14 moves along the guide rails 15 and 16 as necessary, to clean the contact glass 13.



CLAIMS

[Claim(s)]

[Claim 1] The image reader characterized by having laid the guidance rail along with the longitudinal direction of the above-mentioned contact glass, and establishing a cleaning means for this rail top for guidance movable in the image reader which has contact glass for sheet through which is the image reader of the sheet through type which is made to move a manuscript and reads the image on a manuscript, and was along a main scanning direction.

[Claim 2] The image reader according to claim 1 characterized by the presser-foot member which presses down the above-mentioned contact glass on both sides along with a longitudinal direction serving as the above-mentioned guidance rail.

[Claim 3] The image reader according to claim 1 or 2 characterized by having the display for transmitting the contents of the purport this whose cleaning means is what a main scanning direction is made to reciprocate and cleans the above-mentioned contact glass side to a user for the above-mentioned cleaning means.

[Claim 4] The image reader according to claim 1 or 2 with which the above-mentioned cleaning means is characterized by having the fitting structure in which the above-mentioned guidance rail and attachment and detachment are free.

[Claim 5] The image reader according to claim 1 or 2 which forms the storing section of the above-mentioned cleaning means, and is characterized by having the display for transmitting the contents of the purport whose it is the storing location of a cleaning means to a user in this storing section.

[Claim 6] The image reader according to claim 1 or 2 characterized by the above-mentioned storing section having the crevice formed in the above-mentioned manuscript feeder.

[Claim 7] The image reader according to claim 6 carry out having prepared the alarm means which emits in an alarm when a cleaning means is not contained by the storing section when the pressure plate half-opening sensor by which the above-mentioned manuscript feeder is formed in one with the pressure plate which presses down a manuscript, and detects the half-opening condition of this pressure plate, the cleaning means detection sensor which detect that the above-mentioned cleaning means was contained by the storing section, and a pressure plate half-opening sensor detect half-opening of a pressure plate as the description.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the contact glass cleaning equipment in a sheet through type image reader about an image reader.

[0002]

[Description of the Prior Art] There is a sheet through type of image readers which the carriage of the scanner section does not move, but is made to move a manuscript, and is read. In such an image reader, if dirt is in the contact glass for a read station, it will be affected in all the directions of vertical scanning (the direction of paper feed), and ***** will occur in the direction of vertical scanning.

[0003] About the above-mentioned problem, in order to solve a problem, the technique of an indication is in JP,6-98113,A. This is constituted so that it may have a cleaning means by which white datum level and contact glass can be cleaned automatically, near the white datum level. Since white datum level produces unevenness in reading by thickness of paper, a color, etc. of a manuscript in a sheet through type image reader, the white field used as criteria is applied and read at the rear face of a manuscript, and the datum level for performing a shading compensation is said here. This white datum level is arranged in the location which separates contact glass and usually counters with a read station, and is carrying out the shape of an endless belt. And the above-mentioned cleaning means consists of the 1st cleaning means it enabled it to clean automatically, and the 2nd cleaning means which can clean contact glass whenever it is attached in the white datum level itself and goes around, if a pressure welding is carried out to endless white datum level and white datum level rotates.

[0004] Moreover, the technique of an indication is in JP,7-239604,A as other conventional techniques. This forms a cleaning means in the glass window which penetrates the light from a reflective mirror. This cleaning means consists of a pad for cleaning which contacts the above-mentioned glass window, a guide member to which it holds and shows the pad for cleaning, and an energization device which energizes the both-way migration force to the pad for cleaning.

[0005]

[Problem(s) to be Solved by the Invention] Although a means to clean contact glass automatically was shown with the above-mentioned technique, respectively, since equipment was large-scale, there was fault that a manufacturing cost increased. Since cleaning of contact glass is not necessarily always needed, to realize cheaply as a user activity depending on a model is desired.

[0006] This invention is made in view of the above-mentioned request, lays the member for contact glass cleaning for sheet through type manuscript feeders in the location in which a user does not serve as hindrance of reading actuation being easy to work, gives simple workability, and aims at offer of the image reader with which an always good image is obtained.

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, in the image reader which has contact glass for sheet through which is the image reader of the sheet through type which is made to move a manuscript and reads the image on a manuscript, and was along a main scanning direction, this invention lays a guidance rail along with the longitudinal direction of the above-mentioned contact glass, and is characterized by to establish a cleaning means for this rail top for guidance movable.

[0008] Moreover, it can carry out as the configuration whose presser-foot member which presses down the above-mentioned contact glass on both sides along with a longitudinal

direction serves as the above-mentioned guidance rail, the configuration which have the display for transmitting to a user the contents of the purport this cleaning means of whose is what a main scanning direction is made to reciprocate and cleans the above-mentioned contact glass side for the above-mentioned cleaning means, and the configuration have fitting structure free [means / above-mentioned / cleaning] in the above-mentioned guidance rail and attachment and detachment.

[0009] Moreover, it is good also as a configuration which has the crevice where the storing section of the above-mentioned cleaning means was formed, it considered as the configuration which has the display for transmitting the contents of the purport whose it is the storing location of a cleaning means to a user in this storing section, or the above-mentioned storing section was formed in the above-mentioned manuscript feeder.

[0010] Furthermore, when the pressure plate half-opening sensor by which the above-mentioned manuscript feeder is formed in one with the pressure plate which presses down a manuscript, and detects the half-opening condition of this pressure plate, the cleaning means detection sensor which detect that the above-mentioned cleaning means was contained by the storing section, and a pressure plate half-opening sensor detect half-opening of a pressure plate, and a cleaning means is not contained by the storing section, it is desirable in carrying out as the configuration prepared the alarm means which emits in an alarm.

[0011]

[Embodiment of the Invention] Below, a drawing explains the example of this invention.

Drawing 1 is drawing showing the example of a configuration of the important section of the image reader of this invention, and drawing 2 is the sectional view showing the important section of a manuscript feeder. As an example of such an image reader, there is an image read station or an image scanner of a copying machine etc.

[0012] The image reader 10 is equipped with the guidance rails 15 and 16 for moving the contact glass 12 for portable type scanners, the contact glass 13 for sheet through, the cleaning means 14, and the cleaning means 14 onto the manuscript base 11, the pressure plate 17 for pressing a manuscript, and the storing sections 18 and 19 of a cleaning means.

[0013] The contact glass 12 for portable type scanners places a manuscript on this, presses down a manuscript by the pressure plate 17, and is used for the image reader of the format of the carriage (not shown) of the portable type which has contact glass 12 caudad moving, and reading a manuscript.

[0014] The contact glass 13 for sheet through is not made into the object of this invention, and there is contact glass 13 caudad, and the fixed scanner which it does not illustrate moves a manuscript and is used for the image reader of the sheet through type which scans and reads a manuscript.

[0015] Drawing 2 is the fragmentary sectional view of a pressure plate 17. A part of pressure plate 17 is the manuscript feeder 20, and this consists of manuscript installation base 20a, manuscript recovery base 20b, manuscript supply way 20c that connects these, and two or more guide koro 20d arranged along with manuscript supply way 20c.

[0016] The manuscript 1 placed on manuscript installation base 20a passes along manuscript supply way 20c by guide koro 20d, passes through the contact glass 13 top for sheet through, and are collected by manuscript recovery base 20b. And when contact glass 13 is passed, the image of a manuscript is read with the scanner with which contact glass was placed caudad.

[0017] Drawing 3 is the detail sectional view showing the configuration of the cleaning means circumference, and the cleaning means 14 which serves as the contact glass 13 for sheet through, the sheet metals 21 and 22 holding it, and the guidance rails 15 and 16 from the plastics mold material holding cleaning implement 14b and it is shown.

[0018] The guidance rails 15 and 16 are laid along with the longitudinal direction of contact glass 13, and carry out both-way guidance of the cleaning means 14 in a main scanning

direction (the direction of the arrow head A of drawing 1) in the case of migration of the cleaning means 14. In addition, the guidance rails 15 and 16 consist of plastics mold material as a presser-foot member of the both ends of the longitudinal direction of contact glass 13, and plastics mold material is formed so that it may have a rail device.

[0019] The cleaning means 14 has frame 14a for cleaning implement maintenance, and cleaning implement 14b. Frame 14a is formed from plastics mold material, and a cross section carries out the typeface of KO and it ****s to the hollow guide side which the both ends of the character of KO bent inside and was formed in the outside of the guidance rails 15 and 16.

[0020] Cleaning implement 14b is arranged in the space between frame 14a and contact glass 13, and is held or stopped by the cleaning implement maintenance material or stop member which was prepared inside frame 14a and which is not illustrated. Moreover, this cleaning implement 14b can apply the suitable thrust for contact glass 13 by considering as the quality of the material which consists of the quality of the material of soft sponge, cloth, etc., and has elasticity further so that a glass side may not be damaged.

[0021] Frame 14a for cleaning implement maintenance has movable structure easily by fitting in with the guidance rails 15 and 16 in the main scanning direction. Moreover, frame 14a for cleaning implement maintenance and the guidance rails 15 and 16 are simply demounted by applying the suitable force, or insertion of them is possible with the mutual elastic force which it has and the mutual configuration of a fitting part. A user stores a cleaning means in the storing section 18 by this in addition to the time of cleaning. Contact glass 13 is cleaned by taking out the cleaning means 14 from the storing section 18 at the time of cleaning, carrying out fitting to the guidance rails 15 and 16, and making it reciprocate along with the guidance rails 15 and 16. It can contain in the storing section 18 which demounted after cleaning was completed, and was formed in the bodies side of image formation equipment, such as a copying machine, as a crevice, and the storing section 19 too formed in the manuscript feeder 20 side as a crevice.

[0022] A user prepares the display with which the operating instructions of the cleaning means 14 give a simple indication which can be understood easily, and indicate it to be that it is the right storing section to a user at the storing sections 18 and 19 of frame 14a for cleaning implement maintenance at top-face 14c of frame 14a for cleaning implement maintenance.

[0023] Drawing 4 is the 2nd example of this invention. In the above-mentioned example, if the cleaning means 14 is not stored in the position, there is a possibility that the cleaning means 14 and the manuscript feeder 20 may interfere.

[0024] So, in the example of drawing 4 , the cleaning means detection sensor 25 was formed in the storing section 18, and the pressure plate half-opening sensor 26 which detects the half-opening condition of a pressure plate 17 is formed further. When the pressure plate half-opening sensor 26 detects the half-opening condition of a pressure plate 17 and there is no cleaning means 14 into the storing section 18 and 19, a beep sound and/or an alarm display can be carried out, cautions can be demanded from a user, and interference with a cleaning means and a pressure plate can be prevented. Moreover, in order to cope with loss of a cleaning means etc., a beep sound is stopped when a pressure plate is in a close-by-pass-bulb-completely condition.

[0025]

[Effect of the Invention] Since it has the rail for cleaning means guidance, and the cleaning means constituted movable in the rail top for guidance on the manuscript base according to this invention as explained above, a user does not need to look for a cleaning means, and since contact glass can be cleaned easily if needed, degradation of the image quality resulting from the dirt of contact glass can be prevented.

[0026] Moreover, since cleaning is possible only by making a cleaning means reciprocate along with a guidance rail on contact glass, cleaning is made easily and reliable, a user's

burden is mitigated, and loss of a cleaning means can be prevented further.

[0027] Moreover, since the display which transmits the contents of the purport which is that to which it cleans a contact glass side to a user is made by the cleaning means, since a user can clean contact glass if needed, he can maintain contact glass at a pure condition, and can prevent degradation of the image quality resulting from the dirt of contact glass for it.

[0028] Moreover, since the cleaning means is constituted free [a guidance rail and attachment and detachment], when a cleaning means becomes dirty, a user can exchange a cleaning means or a cleaning implement easily. Therefore, since an always pure cleaning means can be used, degradation of the image quality resulting from the dirt of contact glass can be prevented.

[0029] Furthermore, since the crevice which can store this cleaning means is formed in the location corresponding to the storing part of the cleaning means of the pressure plate located in the upper part of a manuscript base at the time of manuscript read, or a manuscript feeder while preparing the storing part of a cleaning means on a manuscript base When a pressure plate or the manuscript feeder for sheet through is closed, while interfering with the cleaning means in the storing section, not being closed correctly and being able to prevent generating of a condition [like], deformation of a device and the incidence of breakage or disturbance light can be prevented.

[0030] Moreover, since the display for transmitting the contents of the purport whose it is the storing section of a cleaning means to a user was made, the user has recognized the storing section of a cleaning means correctly and cleaning space material could be stored in the storing section, when a pressure plate or the manuscript feeder for sheet through is closed into the storing part of a cleaning means, in it, it can interfere with the cleaning means in the storing section, and the effect on an image can prevent.

[0031] If a beep sound and/or an alarm display are carried out and cautions are demanded from a user when a cleaning means detection sensor is formed in the storing section, the pressure plate half-opening sensor which detects the half-opening condition of a pressure plate is formed further, the pressure plate half-opening sensor 21 detects the half-opening condition of a pressure plate, and there is no cleaning means in storing circles, interference with a cleaning means and a manuscript feeder can be prevented.

[Translation done.]

TECHNICAL FIELD

[Field of the Invention] Especially this invention relates to the contact glass cleaning equipment in a sheet through type image reader about an image reader.

[Translation done.]

PRIOR ART

[Description of the Prior Art] There is a sheet through type of image readers which the carriage of the scanner section does not move, but is made to move a manuscript, and is read. In such an image reader, if dirt is in the contact glass for a read station, it will be affected in all the directions of vertical scanning (the direction of paper feed), and ***** will occur in the direction of vertical scanning.

[0003] About the above-mentioned problem, in order to solve a problem, the technique of an indication is in JP,6-98113,A. This is constituted so that it may have a cleaning means by which white datum level and contact glass can be cleaned automatically, near the white datum level. Since white datum level produces unevenness in reading by thickness of paper, a color, etc. of a manuscript in a sheet through type image reader, the white field used as criteria is applied and read at the rear face of a manuscript, and the datum level for performing a shading compensation is said here. This white datum level is arranged in the location which separates contact glass and usually counters with a read station, and is carrying out the shape of an endless belt. And the above-mentioned cleaning means consists of the 1st cleaning means it enabled it to clean automatically, and the 2nd cleaning means which can clean contact glass whenever it is attached in the white datum level itself and goes around, if a pressure welding is carried out to endless white datum level and white datum level rotates.

[0004] Moreover, the technique of an indication is in JP,7-239604,A as other conventional techniques. This forms a cleaning means in the glass window which penetrates the light from a reflective mirror. This cleaning means consists of a pad for cleaning which contacts the above-mentioned glass window, a guide member to which it holds and shows the pad for cleaning, and an energization device which energizes the both-way migration force to the pad for cleaning.

[Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention] Since it has the rail for cleaning means guidance, and the cleaning means constituted movable in the rail top for guidance on the manuscript base according to this invention as explained above, a user does not need to look for a cleaning means, and since contact glass can be cleaned easily if needed, degradation of the image quality resulting from the dirt of contact glass can be prevented.

[0026] Moreover, since cleaning is possible only by making a cleaning means reciprocate along with a guidance rail on contact glass, cleaning is made easily and reliable, a user's burden is mitigated, and loss of a cleaning means can be prevented further.

[0027] Moreover, since the display which transmits the contents of the purport which is that to which it cleans a contact glass side to a user is made by the cleaning means, since a user can clean contact glass if needed, he can maintain contact glass at a pure condition, and can prevent degradation of the image quality resulting from the dirt of contact glass for it.

[0028] Moreover, since the cleaning means is constituted free [a guidance rail and attachment and detachment], when a cleaning means becomes dirty, a user can exchange a cleaning means or a cleaning implement easily. Therefore, since an always pure cleaning means can be used, degradation of the image quality resulting from the dirt of contact glass can be prevented.

[0029] Furthermore, since the crevice which can store this cleaning means is formed in the location corresponding to the storing part of the cleaning means of the pressure plate located in the upper part of a manuscript base at the time of manuscript read, or a manuscript feeder while preparing the storing part of a cleaning means on a manuscript base When a pressure plate or the manuscript feeder for sheet through is closed, while interfering with the cleaning means in the storing section, not being closed correctly and being able to prevent generating of a condition [like], deformation of a device and the incidence of breakage or disturbance light can be prevented.

[0030] Moreover, since the display for transmitting the contents of the purport whose it is the storing section of a cleaning means to a user was made, the user has recognized the storing section of a cleaning means correctly and cleaning space material could be stored in the storing section, when a pressure plate or the manuscript feeder for sheet through is closed into the storing part of a cleaning means, in it, it can interfere with the cleaning means in the storing section, and the effect on an image can prevent.

[0031] If a beep sound and/or an alarm display are carried out and cautions are demanded from a user when a cleaning means detection sensor is formed in the storing section, the pressure plate half-opening sensor which detects the half-opening condition of a pressure plate is formed further, the pressure plate half-opening sensor 21 detects the half-opening condition of a pressure plate, and there is no cleaning means in storing circles, interference with a cleaning means and a manuscript feeder can be prevented.

[Translation done.]

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] Although a means to clean contact glass automatically was shown with the above-mentioned technique, respectively, since equipment was large-scale, there was fault that a manufacturing cost increased. Since cleaning of contact glass is not necessarily always needed, to realize cheaply as a user activity depending on a model is desired.

[0006] This invention is made in view of the above-mentioned request, lays the member for contact glass cleaning for sheet through type manuscript feeders in the location in which a user does not serve as hindrance of reading actuation being easy to work, gives simple workability, and aims at offer of the image reader with which an always good image is obtained.

[Translation done.]

MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, in the image reader which has contact glass for sheet through which is the image reader of the sheet through type which is made to move a manuscript and reads the image on a manuscript, and was along a main scanning direction, this invention lays a guidance rail along with the longitudinal direction of the above-mentioned contact glass, and is characterized by to establish a cleaning means for this rail top for guidance movable.

[0008] Moreover, it can carry out as the configuration whose presser-foot member which presses down the above-mentioned contact glass on both sides along with a longitudinal direction serves as the above-mentioned guidance rail, the configuration which have the display for transmitting to a user the contents of the purport this cleaning means of whose is what a main scanning direction is made to reciprocate and cleans the above-mentioned contact glass side for the above-mentioned cleaning means, and the configuration have fitting structure free [means / above-mentioned / cleaning] in the above-mentioned guidance rail and attachment and detachment.

[0009] Moreover, it is good also as a configuration which has the crevice where the storing section of the above-mentioned cleaning means was formed, it considered as the configuration which has the display for transmitting the contents of the purport whose it is the storing location of a cleaning means to a user in this storing section, or the above-mentioned storing section was formed in the above-mentioned manuscript feeder.

[0010] Furthermore, when the pressure plate half-opening sensor by which the above-mentioned manuscript feeder is formed in one with the pressure plate which presses down a manuscript, and detects the half-opening condition of this pressure plate, the cleaning means detection sensor which detect that the above-mentioned cleaning means was contained by the storing section, and a pressure plate half-opening sensor detect half-opening of a pressure plate, and a cleaning means is not contained by the storing section, it is desirable in carrying out as the configuration prepared the alarm means which emits in an alarm.

[0011]

[Embodiment of the Invention] Below, a drawing explains the example of this invention. Drawing 1 is drawing showing the example of a configuration of the important section of the image reader of this invention, and drawing 2 is the sectional view showing the important section of a manuscript feeder. As an example of such an image reader, there is an image read station or an image scanner of a copying machine etc.

[0012] The image reader 10 is equipped with the guidance rails 15 and 16 for moving the contact glass 12 for portable type scanners, the contact glass 13 for sheet through, the cleaning means 14, and the cleaning means 14 onto the manuscript base 11, the pressure plate 17 for pressing a manuscript, and the storing sections 18 and 19 of a cleaning means.

[0013] The contact glass 12 for portable type scanners places a manuscript on this, presses down a manuscript by the pressure plate 17, and is used for the image reader of the format of the carriage (not shown) of the portable type which has contact glass 12 caudad moving, and reading a manuscript.

[0014] The contact glass 13 for sheet through is not made into the object of this invention, and there is contact glass 13 caudad, and the fixed scanner which it does not illustrate moves a manuscript and is used for the image reader of the sheet through type which scans and reads a manuscript.

[0015] Drawing 2 is the fragmentary sectional view of a pressure plate 17. A part of pressure plate 17 is the manuscript feeder 20, and this consists of manuscript installation base 20a, manuscript recovery base 20b, manuscript supply way 20c that connects these, and two or more guide koro 20d arranged along with manuscript supply way 20c.

[0016] The manuscript 1 placed on manuscript installation base 20a passes along manuscript supply way 20c by guide koro 20d, passes through the contact glass 13 top for sheet through, and are collected by manuscript recovery base 20b. And when contact glass 13 is passed, the image of a manuscript is read with the scanner with which contact glass was placed caudad.

[0017] Drawing 3 is the detail sectional view showing the configuration of the cleaning means circumference, and the cleaning means 14 which serves as the contact glass 13 for sheet through, the sheet metals 21 and 22 holding it, and the guidance rails 15 and 16 from the plastics mold material holding cleaning implement 14b and it is shown.

[0018] The guidance rails 15 and 16 are laid along with the longitudinal direction of contact glass 13, and carry out both-way guidance of the cleaning means 14 in a main scanning direction (the direction of the arrow head A of drawing 1) in the case of migration of the cleaning means 14. In addition, the guidance rails 15 and 16 consist of plastics mold material as a presser-foot member of the both ends of the longitudinal direction of contact glass 13, and plastics mold material is formed so that it may have a rail device.

[0019] The cleaning means 14 has frame 14a for cleaning implement maintenance, and cleaning implement 14b. Frame 14a is formed from plastics mold material, and a cross section carries out the typeface of KO and it ****s to the hollow guide side which the both ends of the character of KO bent inside and was formed in the outside of the guidance rails 15 and 16.

[0020] Cleaning implement 14b is arranged in the space between frame 14a and contact glass 13, and is held or stopped by the cleaning implement maintenance material or stop member which was prepared inside frame 14a and which is not illustrated. Moreover, this cleaning implement 14b can apply the suitable thrust for contact glass 13 by considering as the quality of the material which consists of the quality of the material of soft sponge, cloth, etc., and has elasticity further so that a glass side may not be damaged.

[0021] Frame 14a for cleaning implement maintenance has movable structure easily by fitting in with the guidance rails 15 and 16 in the main scanning direction. Moreover, frame 14a for cleaning implement maintenance and the guidance rails 15 and 16 are simply demounted by applying the suitable force, or insertion of them is possible with the mutual elastic force which it has and the mutual configuration of a fitting part. A user stores a cleaning means in the storing section 18 by this in addition to the time of cleaning. Contact glass 13 is cleaned by taking out the cleaning means 14 from the storing section 18 at the time of cleaning, carrying out fitting to the guidance rails 15 and 16, and making it reciprocate along with the guidance rails 15 and 16. It can contain in the storing section 18 which demounted after cleaning was completed, and was formed in the bodies side of image formation equipment, such as a copying machine, as a crevice, and the storing section 19 too formed in the manuscript feeder 20 side as a crevice.

[0022] A user prepares the display with which the operating instructions of the cleaning means 14 give a simple indication which can be understood easily, and indicate it to be that it is the right storing section to a user at the storing sections 18 and 19 of frame 14a for cleaning implement maintenance at top-face 14c of frame 14a for cleaning implement maintenance.

[0023] Drawing 4 is the 2nd example of this invention. In the above-mentioned example, if the cleaning means 14 is not stored in the position, there is a possibility that the cleaning means 14 and the manuscript feeder 20 may interfere.

[0024] So, in the example of drawing 4 , the cleaning means detection sensor 25 was formed in the storing section 18, and the pressure plate half-opening sensor 26 which detects the half-opening condition of a pressure plate 17 is formed further. When the pressure plate half-opening sensor 26 detects the half-opening condition of a pressure plate 17 and there is no cleaning means 14 into the storing section 18 and 19, a beep sound and/or an alarm display can be carried out, cautions can be demanded from a user, and interference with a cleaning means and a pressure plate can be prevented. Moreover, in order to cope with loss of a

cleaning means etc., a beep sound is stopped when a pressure plate is in a close-by-pass-bulb-completely condition.

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the example of a configuration of the important section of the image reader of this invention.

[Drawing 2] It is the detail drawing showing the configuration of the cleaning means circumference.

[Description of Notations]

1 Manuscript

10 Image Reader

13 Contact Glass

14 Cleaning Means

14a Frame

14b Cleaning implement

15 16 Guidance rail

18 19 The storing section of a cleaning means

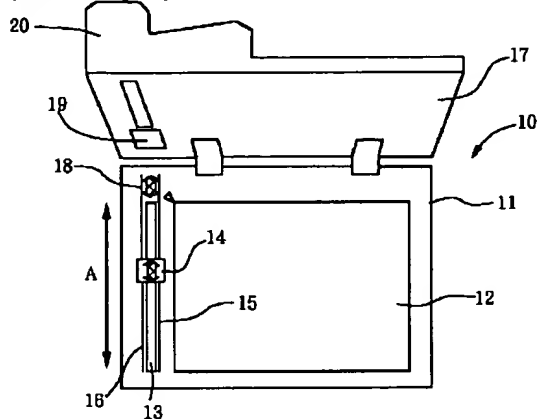
25 Cleaning Means Detection Sensor

26 Pressure Plate Half-opening Sensor

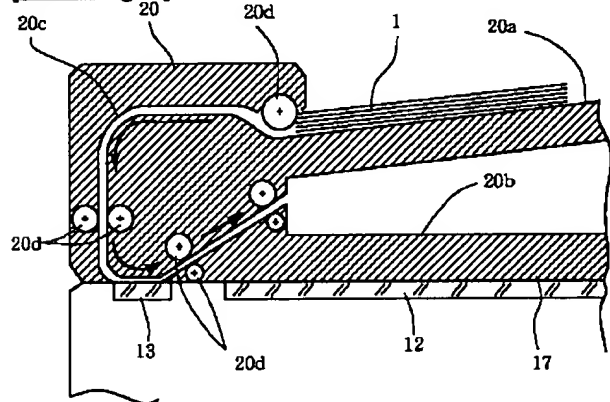
[Translation done.]

DRAWINGS

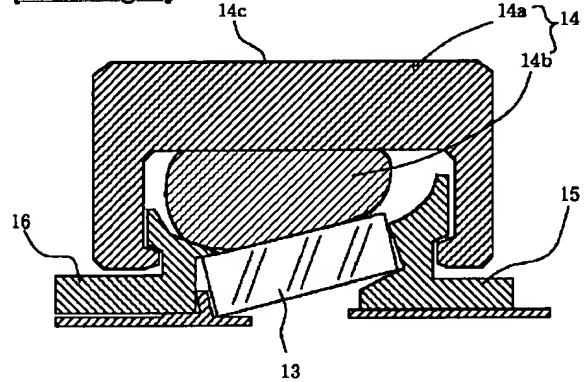
[Drawing 1]



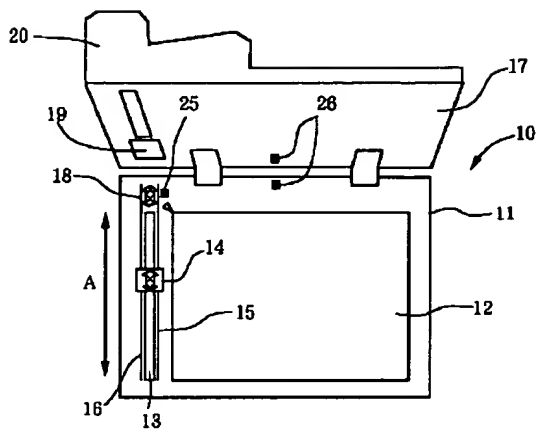
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]